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(54) COMPOSITIONS POUR SHAMPOING
(54) SHAMPOO COMPOSITIONS

(57) Shampoing revitalisant comportant des agents revitalisants, soit de 0,1 à 4 % en poids d'un ou plusieurs diméthicone-copolyols ayant un ratio oxyde d'éthylène/oxyde de propylène de 20/80 à 80/20, et de 0,5 à 4 % en poids d'un ou plusieurs émulsifiants non-ioniques ayant un rapport hydrophile-lypophile de 8 à 12 et qui ne modifient pas les propriétés moussantes du shampoing.

(57) A conditioning shampoo composition comprises, as the conditioning agents thereof, from 0.1 to 4.0 % by weight of one or more dimethicone copolyols having an ethylene oxide/propylene oxide (EO/PO) ratio of from 20/80 to 80/20 and from 0.5 to 4.0 % by weight of one or more non-ionic emulsifiers having a HLB of from 8 to 12 and which do not affect the foaming property of the shampoo.

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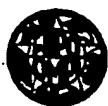
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(54) Title: SHAMPOO COMPOSITIONS

(57) Abstract

A conditioning shampoo composition comprises, as the conditioning agents thereof, from 0.1 to 4.0 % by weight of one or more dimethicone copolyols having an ethylene oxide/propylene oxide (EO/PO) ratio of from 20/80 to 80/20 and from 0.5 to 4.0 % by weight of one or more non-ionic emulsifiers having a HLB of from 8 to 12 and which do not affect the foaming property of the shampoo.

SHAMPOO COMPOSITIONS

This invention is concerned with shampoo compositions and, more particularly, with conditioning shampoos, that is shampoos which have both the usual

5   cleansing action and also a conditioning action. The use of such shampoos avoids the necessity for the separate use of a hair conditioner after the hair has been washed with a conventional shampoo having only a cleansing action.

10   Whilst conditioning shampoo compositions are known, a disadvantage that arises with some of them is that on repeated use, there is a build up of the conditioning ingredients on the hair so that the washed hair no longer feels pleasant to the user.

15   Conditioning shampoos have also been described and are commercially available which do not suffer from this disadvantage, that is the build up of conditioning agents. Such shampoo compositions are described for example, in U.S. Patents 4,704,272; 4,741,855; and

20   4,788,006 and in British Specifications 2,192,194A and 2,196,980A.

        An object of the present invention is to provide alternative conditioning shampoo compositions which are not subject to the significant build up of

25   conditioning ingredients on repeated use.

        We have found that these requirements can be met by using a combination of certain dimethicone copolyols and certain non-ionic emulsifiers having an HLB of from 8 to 12 as the conditioning agents in a

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shampoo composition which may, in other respects, be
conventional.

According to the present invention, there is
provided a conditioning shampoo composition which
5   comprises, as the conditioning agents thereof, from 0.1
to 4.0% by weight of one or more dimethicone copolyols
having an ethylene oxide/propylene oxide (EO/PO) ratio
of from 20/80 to 80/20 and from 0.5 to 4.0% by weight of
one or more non-ionic emulsifiers having an HLB of from
10   8 to 12 and which do not affect the foaming property of
the shampoo.

Dimethicone copolyol is a CTFA adopted name
for polysiloxane polyether copolymers of the formula:

$$(CH_3)_3 \; Si-O \left[\begin{array}{c} CH_3 \\ | \\ Si-O \\ | \\ CH_3 \end{array} \right]_n \left[\begin{array}{c} CH_3 \\ | \\ Si \; - \; O \\ | \\ \end{array} \right]_m Si(CH_3)_3$$

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$$(CH_2)_3-O-(C_2H_4O)_x-(C_3H_6O)_y-H$$
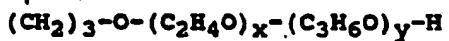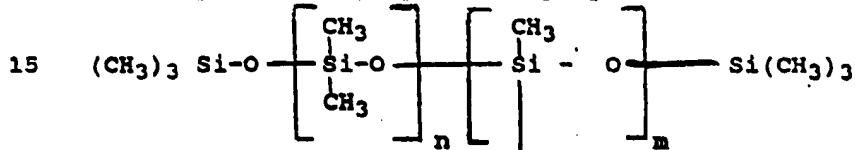
where n, m, x and y are integers. The dimethicone
20   copolyols used according to the invention have values of
x and y such that the ratio x:y, that is the EO/PO
ratio, is from 20/80 to 80/20.

Preferred dimethicone copolyols contain from
60 to 140 SiO_2 units, that is the sum of n and m is from
25   60 to 140.

The dimethicone copolyol constituent of the
shampoo composition preferably comprises a major
proportion of a dimethicone copolyol having an EO/PO
ratio of from 80/20 to 70/30 and a minor proportion of a
30   dimethicone copolyol having an EO/PO ratio of from 20/80
to 40/60.

Suitable dimethicone copolyols for use in the
shampoo compositions according to the invention are
available, for example, from Th.Goldschmidt AG, of
35   Essen, Germany under the Trade Mark "Abil". A preferred
dimethicone copolyol having an EO/PO ratio of 77/23 is
available as "Abil" B88183 and a preferred dimethicone

copolyol having an EO/PO ratio of 20/80 is available as
"Abil" B8852; these two materials both contain about 60
SiO_2 units. A preferred dimethicone copolyol having an
EO/PO ratio of 40/60 and containing about 140 SiO_2 units

5   is available as "Abil" G911.

We have found that the extent of deposition of
the dimethicone copolyol can be controlled by using it
in conjunction with the non-ionic emulsifier having an
HLB of from 3 to 12; in this way excessive build up of

10 the conditioning agent on repeated use of the shampoo
can be prevented. The greater the amount of the
non-ionic emulsifier used, in relation to a given amount
of dimethicone copolyol, the less of the latter is left
on the hair.

15   For any particular choice of dimethicone
copolyol(s) and non-ionic emulsifier(s), the optimum
proportions of these two ingredients to obtain the
desired deposition of dimethicone copolyol on the hair
can be readily established by routine experimentation.

20 By way of example, using a preferred combination of
dimethicone copolyols as referred to above and the
particularly preferred non-ionic emulsifier referred to
below, we have found that an optimum level of
dimethicone copolyol deposition is obtained by using

25 1.5% by weight of the non-ionic emulsifier and 1.1% by
weight of the dimethicone copolyol combination.

Preferred non-ionic emulsifiers having an HLB
of from 8 to 12 for use in accordance with the invention
are:

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CTFA name	Trade name	Chemical name	HLB
Sorbitan laurate	Arlacel 20	Sorbitol mono-laurate	8.6
PEG30 castor oil	Arlatone 827	Ethoxylated castor oil	11.9
PEG25 hydrogen-ated castor oil	Arlatone G	POE(25) hydro-genated castor oil	10.8
PEG40 sorbitan peroleate	Arlatone T	POE(40) sorbitol heptaoleate	9.5
PEG40 sorbitan hexaoleate	Atlas G1086	POE(40) sorbitol hexaoleate	10.2
n/a	Atlas G1087	POE sorbitol oleate	10.2
n/a	Atlas G1096	POE sorbitol hexaoleate	11.4
n/a	Atlas G1281	POE triglyceride	9.7

n/a = not available. (All supplied by ICI Speciality Chemicals).

Of these, PEG40 sorbitan hexaoleate is particularly preferred.

The shampoo composition according to the invention will contain cleansing agents which may be any of the anionic, cationic, amphoteric and non-ionic surfactants conventionally used in such compositions, these ingredients being used in the conventional proportions. The composition can, and usually will, contain further ingredients which provide particular desired characteristics or properties to the composition.

Suitable ingredients for shampoo compositions according to the invention are, for example, as follows:

Cleansing agents

It is preferred that the cationic component of the surfactants included in the composition should be one or more quaternary ammonium salt surfactants. A

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number of quaternary surfactants can be used for this
purpose; preferred compounds are, for example,
stearamidopropyl dimethylamine lactate and
steartrimonium hydrolysed animal protein (available

5 under the Trade Mark "Crotain Q" from Croda Chemicals).

The proportion of quaternary surfactant used
is preferably from 0.5 to 2.0% by weight.

It is preferred that the composition should
contain from 10 to 20% by weight of one or more anionic

10 surfactants, such as sodium laureth sulphate and
ammonium lauryl sulphate, and from 1 to 3% by weight of
one more amphoteric surfactants, such as cocamidopropyl
betaine, as the main cleansing agents.

Thickeners

15 Suitable thickeners include, for example,
hydroxypropyl methyl cellulose and talloweth 60 myristyl
glycol; the proportion of thickener is suitably from 0.1
to 2.0% by weight, depending on the type of thickener
used and the required viscosity.

20 Hair bodying agents

Suitable agents for imparting body to the hair
include, for example, cetyl alcohol and lauric acid
monoglyceride; these agents are suitably used in a
proportion of from 0.50 to 1.50% by weight.

25 Other conventional ingredients which may be
and preferably are included in the shampoo composition
are: a hydrotrope, such as ammonium xylene sulphonate,
to prevent deposition in hard water areas of undesirable
materials on the hair; pearlising agents; preservatives;

30 pH adjusters, such as lactic acid; colourants; and
perfumes.

In order that the invention may be more fully
understood, the following examples, in which all
percentages are by weight, are given by way of

35 illustration only.

Examples 1-3

Three conditioning shampoo compositions were

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made up having the compositions set out in Table 1.

Table 1

		% active	
Example	1	2	3
Sodium laureth sulphate	7.00	7.00	7.00
Ammonium lauryl sulphate	7.00	7.00	7.00
Cocamidopropyl betaine	1.60	1.60	1.60
Ammonium xylene sulphonate	1.40	1.40	1.40
PEG40 sorbitan hexaoleate	1.50	1.50	1.50
Dimethicone copolyol			
(Abil B8833)	1.00	1.00	1.00
Dimethicone copolyol			
(Abil B8852)	1.10	1.10	-
Dimethicone copolyol			
(Abil G911)	-	-	0.10
Stearamidopropyl dimethyl-			
amine lactate	0.625	0.625	0.625
Cetyl alcohol	0.50	0.50	0.50
Na laureth sulphate (and)			
glycol distearate (and)			
cocamide MEA	0.90	0.90	0.90
Hydroxypropyl methyl			
cellulose	0.25	0.25	0.25
Methylchloroisothiazolinone	0.0009	0.0009	0.0009
Talloweth 60 myristyl glycol	0.45	-	-
Lauric acid monoglyceride	-	1.50	1.50
Lactic acid	-	0.20	0.20
Colour, perfume and water	to 100	to 100	to 100

These shampoo compositions were used by a professional hairdresser to wash hair in comparison with a commercially available conditioning shampoo (used as a control).

Each person having their hair washed had one half of their head (left or right) washed with one of the test shampoos and the other half washed with the control shampoo: The shampoos, that is the test shampoo and the control shampoo, were provided to the

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hairdresser in syringes containing 7 ml of shampoo. The
syringes were labelled with the test persons name, date,
time of appointment and side of head on which the
shampoo was to be used. Neither the test person nor the
5   hairdresser knew which shampoo (that is test shampoo or
control shampoo) was present in each syringe.

Each test shampoo was tested on a panel of 60
subjects.

During and after the hair washing operation,
10   the hairdresser made an assessment on both sides of the
head using a five point scale (5 = excellent, 4 = very
good, 3 = good, 2 = fair and 1 = poor) for each of the
following fifteen attributes:
       initial lather
15   quantity of lather
       quality of lather
       cleanliness of wet hair
       ease of rinsing
       ease of wet combing
20   ease of dry combing
       flyaway
       hair manageability
       softness
       silkiness
25   condition of hair
       body
       feel of dry hair
       shine
       The average ratings of the shampoo of Example
30   1 over the whole of the test panel were in the range
       4.06 - 5.00, those of the shampoo of Example 2 were in
       the range 4.28 - 5.00, and those of the shampoo of
       Example 3 were in the range 4.32 - 5.0 (for comparison
       the ratings of the control shampoo were in the range
35   4.24 - 5.00).

CLAIMS

1. A conditioning shampoo composition which comprises in percent by weight in water 10 to 20% of one or more anionic surfactants, 1 to 5% of one or more amphoteric surfactants, 0.5 to 2.0% of one or more quaternary ammonium surfactants, 0.5 to 4.0% of one or more non-ionic emulsifiers having an HLB of from 8 to 12, and 0.1 to 4.0% of one or more dimethicone copolyols having from 60 to 140 SiO_2 units and an ethylene oxide/propylene oxide (EO/PO) ratio of from 20/80 to 80/20.

2. A shampoo composition according to claim 1 wherein the dimethicone copolyol comprises a major proportion of a dimethicone copolyol having an EO/PO ratio of from 80/20 to 70/30 and a minor proportion of a dimethicone copolyol having an EO/PO ratio of from 20/80 to 40/60.

3. A shampoo composition according to claim 2 comprising 1.1% dimethicone copolyol and 1.5% non-ionic emulsifier.

4. A shampoo composition according to claim 1, in which the non-ionic emulsifier having an HLB of from 8 to 12 is polyethylene glycol (PEG) 40 sorbitan hexaoleate.

5. A shampoo composition according to claim 1 in which the dimethicone copolyol has a EO/PO ratio of 77/33.

6. A shampoo composition according to claim 1, in which the quaternary surfactant is stearamidopropyldimethylamine lactate or steartrimonium hydrolysed animal protein.

7. A shampoo composition according to claim 1 comprising 1.1% dimethicone copolyol and 1.5% non-ionic emulsifier.

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